Lindsay States

Practice with Positive/Negative Numbers

Intended grade levels: 9th/Pre-Algebra

**Rationale:** In this lesson, students will be able to increase proficiency in adding and subtracting positive and negative numbers. Students will be using a visual aid different from the number line (which would have been thoroughly addressed in lessons prior to this one, and will be used as a tool in this lesson). Students need to learn proficiency in how to add and subtract positive and negative numbers. Many students in my school (whom I have tutored) find the concept of negative numbers confusing, and if they do not have a firm foundation in how to use positive and negative numbers, they will struggle in future Math classes, including Algebra. Reinforcing this concept/skill in this lesson will assist students to gain proficiency. Also, offering a different way (than the number line or in an equation) of looking at this concept can help students broaden their understanding of the concept. This lesson will lead into the multiplication and division of positive and negative numbers.

**Standard(s):** 7.1.C Fluently and accurately **add**, **subtract**, multiply and divide rational numbers.

**Technology:** The Source (website that has our class website which will have the link to the activity). Activity Website: <http://nlvm.usu.edu/en/nav/frames_asid_122_g_4_t_1.html?open=instructions&from=category_g_4_t_1.html>. Activity: “Circle 0.”

**Lesson Plan:**

-Students will meet in the Computer Lab

-Introductory Activity-in notebooks or on a separate sheet of paper, create a number line to use in this activity with numbers -10 through 10. This activity will give students a tool for the lesson and show that they have internalized what a number line is.

-Teacher will show students how to navigate to the class webpage, and where to find the link to the activity.

-Teacher will explain how the activity works, and model going through 1 puzzle. As teacher models, teacher will also be “thinking aloud” the thought process of trial and error for students to see so that they too can practice trial and error.

-Teacher will have a student volunteer do the next puzzle, also “thinking aloud” so that students can see another person’s thought process. If the volunteer is struggling, teacher will ask for other students’ ideas/techniques in how to attack the puzzle, creating a collaborative opportunity for the class, and to allow other students to act as experts, instilling confidence in other students.

-Students will work to complete 3 “Circle 0” puzzles for the rest of the class period. The website seems to generate different puzzles each time, so students will not be working on the same puzzles and will not be able to copy off of each other (allowing authentic individual assessment).

**Assessment:** The basic assessment is that students will complete 3 “Circle 0” puzzles. I will be circulating the lab to check off students after each puzzle (which turn red when correct), but more importantly to assist students in need. The assessment is very quick, so whether students are understanding the activity will become clear very quickly. For students who do not do the required 3 puzzles, I will revisit the adding/subtracting of positive/negative numbers in the next class period.

**Special Needs:** Beginning the lesson with “Circle 0” is meant to create access to the concept for *all* students in the class, as it uses small numbers. For students who finish the required 3 puzzles, they may do more if they choose, or create their own “Circle 10” puzzle as an enrichment exercise.

**Modification for substitute:** Since substitutes are not allowed to take students to the computer lab, I would change the lesson plan so that the sub would model how to do the problem on the classroom workstation, and then have students complete the circles on notebook paper to turn in at the end of class.